PROCEEDINGS OF THE

ROYAL ENTOMOLOGICAL SOCIETY

OF LONDON

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ORDINARY MEETING

WEDNESDAY, 5th OCTOBER, 1960, at 5.30 p.m. (Tea 5 p.m.)

AGENDA

1. Confirmation of the Proceedings of the Ordinary Meeting held on 6th July, 1960.
2. Recommendations of candidates for Fellowship. First reading.
3. Recommendations of candidates for Fellowship. Second reading.
4. Announcement of election of new Fellows.
5. Additions to the Library [see p. 23].
6. Admission of Fellows.
7. Exhibits.
8. Communications.

1. Professor Brian Hocking

Some aspects of aggregation in insects

[ABSTRACT]

Herbert Spencer's concept of universal centripetalism in the light of advances in some important fields of science, especially entomology, since his time will be re-examined.

Aspects of insect aggregation and intraspecific interaction will be considered, especially the part played in these phenomena by the senses of smell, vision and hearing. Some data on the influences of different population densities on the rate of insect development will be presented. These two groups of information will be discussed in relation to the characteristic features of social life.

2. Mr. C. L. Bell

The life history of the Marsh Fritillary, *Euphydryas aurinea* (Rott.)

A film covering the complete life cycle of the Marsh Fritillary in a Gloucestershire habitat, many stages being shown in close detail. The damage caused by the parasites *Erycia cinerea* R.-D., *Apanteles bignellii* Marshall and *A. melitaearum* Wilkinson is also shown.

NOTICES

The next meeting wlll be held on *Wednesday, 2nd November*, 1960 :

(1) **The Hon. Mrs. M. Lane** and **Mr. R. Lowry** (a visitor).—The analysis of warning scents of insects by means of gas chromatography.

(2) **Dr. H. E. Hinton.**—The respiratory systems of insect eggs.

Proceedings of the Ordinary Meeting held on 6th July, 1960

Dr. B. P. Uvarov, C.M.G., F.R.S., President, in the Chair

Present, 90 Fellows and 19 Visitors

Before the meeting opened the President extended a welcome to the large number of visitors from overseas now in London on the occasion of the Commonwealth Entomological Conference.

The minutes of the meeting held on 1st June, 1960 were confirmed and signed by the President.

The names of the following candidates for election were read for the first time : Mr. Douglas Stuart Anderson, B.Sc.; Professor Robert Earl Lewis ; Mr. Max W. McFadden ; Mr. John Dunell Handman ; Mr. George Murdie ; Dr. Lewis J. Stannard ; Mr. John Summerton ; Mr. Saieduz Zafar Varcie, B.Sc.; and Mr. John Charles Watt.

For the second time (taken as read) : Mr. Edwin Dharmaraju ; Dr. Derek Anthony Duckhouse, B.Sc., Ph.D.; Mr. Radheshyam Gokulpure ; Dr. Avinash Chandra Mathur ; Dr. Peter Lamont Miller ; and Mr. D. C. Swan, M.Sc.

The Secretary read the names of the following newly elected Fellows of the Society : Mr. Richard K. Allen, University of Utah, Salt Lake City, Utah, U.S.A.; Mr. Colin Anderson, Marsdene, Beech Grove, Hest Bank Lane, Slyne, Lancaster ; Dr. David Gerald Hessayon, Ph.D., B.Sc., Porch House, West Hill Road, Hoddesdon, Herts.; Dr. Francis Godfrey Smith, D.Sc., Beekeeping Division, P.O. Box 3052, Arusha, Tanganyika ; and Mr. Sidney George Peter Stratton, 92 Copsleigh Avenue, Salfords, Surrey.

Thanks were voted to donors of gifts to the Library since the last Meeting.

Professor T. N. Ananthakrishnan, Mr. H. Brédo, Dr. W. Cottier, Mr. J. Forsyth, Dr. J. W. C. Geyer, Mr. J. F. Graham, Mr. P. M. Hammond, Mr. G. B. Reilly and Mr. I. A. D. Robertson signed the Obligation Book and were admitted Fellows of the Society.

Professor C. D. Michener (a visitor) gave a paper on the origin and evolution of social behaviour in bees, an abstract of which appeared on page 17.

In the discussion which followed, Professor O. W. Richards asked whether there was any relation between the size and type of organisation of a colony and the climate. Dr. Michener said he did not think there was any detectable relation.

In reply to an enquiry as to whether there was any evidence of social communication between neighbouring nests in more primitive societies, Dr. Michener said there was none in the ordinary sense. Exceptions did, however, occur ; for example, species of *Nomia* had been known to invade within a few days a site which had been previously unoccupied, to such an extent that they spread over to surrounding less suitable ground.

Dr. C. R. Ribbands asked if Dr. Michener could explain the relationship between workers and queens of the species he had discussed (*Lasioglossum inconspicuum* Smith). He wondered if caste differentiation resulted simply from lack of mating or whether there were larval feeding differences. Dr. Michener replied that there must be some trophic differences in view of the average size differences. However, in late summer some workers do become fertilised, but do not lay eggs ; there must therefore be some differences other than merely the failure to mate.

In reply to an enquiry by Dr. I. H. H. Yarrow regarding replacement queens, Dr. Michener said there was great colony mortality during the summer. The end of a colony may result from the death of the queen. On other occasions a young queen, which had nothing to do with the development of the nest in the spring, is found in nests with old workers in July and August. She must therefore be some kind of replacement queen. Dr. Yarrow said that it was necessary to be able to define what made a queen and Dr. Michener observed that an existing queen might have some inhibiting effect on a newly emerged potential queen, causing it to become a worker.

In reply to an enquiry as to whether a laying worker could produce eggs which could develop into queens, Dr. Michener said he did not know. In any case, in worker humble bees, in the presence of a queen, eggs that were developed were resorbed by the ovaries and not laid. There was some slight evidence in Germany that males of *Lasioglossum malachurum* were only produced by egg-laying workers.

Dr. W. Cottier gave a paper on the control of a weed (manuka) in New Zealand by a Coccid, *Eriococcus orariensis* Hoy, an abstract of which appeared on page 18.

In the discussion which followed Mr. E. O. Pearson asked whether in areas of mixed stands of canuka and manuka there was any tendency for canuka to increase to pest proportions when manuka was destroyed. Dr. Cottier replied that there was no evidence of this ; canuka did not spread as a weed and was useful as a shelter tree. He also continued, in reply to further enquiries, that the fears of the New Zealand conservationists had not been justified ; there had been no sliding of the land and no evidence of lack of re-afforestation by native plants.

Dr. Ribbands suggested that rather than attempt to substantiate the evidence for either side it might be simpler just to tell the New Zealand farmers that the weed and the insects occur naturally in Australia, and go ahead and introduce the Coccid.

In reply to an enquiry by Mr. M. J. Way, Dr. Cottier said that manuka was not a pest in Australia.

PAUL FREEMAN, *Honorary Secretary.*

Additions to the Library

Presented

James, M. T. *The Soldier flies or Stratiomyidae of California.* [*Bull. Calif. Insect Survey.* **6** : 79–122, 1960.] [The Publishers.]

Kaddou, I. K. *The feeding behaviour of* Hippodamia quinquesignata (*Kirby*) *larvae.* [*Univ. Calif. Publ. Ent.* **16** : 181–232, 1960.] [The Publishers.]

Middlekauff, W. W. *The siricid wood wasps of California* (*Hymenoptera* : *Symphyta*). [*Bull. Calif. Insect Survey* **6** : 59–77, 1960]. [The Publishers.]

Shute, P. G. and Maryon, M. E. *Laboratory technique for the study of malaria.* 8vo. London : J. & A. Churchill Ltd., 1960. [The Authors.]

Tipton, V. J. *The genus* Laelaps, *with a review of the Laelaptinae and a new subfamily Alphalaptinae* (*Acarina* : *Laelaptidae*). [*Univ. Calif. Publ. Ent.* **16** : 233–356, 1960]. [The Publishers.]

Purchased

Förster, W. and Wohlfahrt, T. *Die Schmetterlinge Mitteleuropas.* Band III, Lief. 15. 4to. Stuttgart, 1960.

Southwood, T. R. E. and Leston, D. *Land and water bugs of the British Isles.* 8vo. London. 1959.

Stichel, W. *Illustrierte Bestimmungstabellen der Wanzen.* II. *Europa* (*Hemiptera-Heteroptera Europae*) Vol. 3, Hft. 10–11. 8vo. Berlin-Hermsdorf, 1960.

In addition separates have been presented by the American Entomological Society ; Professor D. K. McE. Kevan ; Professor M. Florkin ; Mr. E. P. Wiltshire ; Dr. H. E. Hinton ; Mr. A. Jedlicka ; Mr. R. S. George ; United States Department of Agriculture ; Anti-Locust Research Centre ; Professor A. Tjønneland ; Mr. B. L. Sage ; Dr. C. A. Clarke ; Dr. P. S. Corbet ; Professor T. Jaczewski ; Dr. J. M. Whitten ; Miss E. N. Marks ; Mr. D. Boocock ; Dr. W. F. Jepson ; United States National Museum ; Dr. E. J. Popham ; Mr. J. J. Steyn ; Dr. N. E. Hickin ; Bee Department, Rothamsted Experimental Station ; Dr. P. A. Van der Laan ; Professor Dr. C. M. Biezanko ; Dr. H. E. Henson ; Dr. G. A. Walton ; Mr. B. Berck ; Dr. J. D. Bletchly ; Laboratorium voor Entomologie, Wageningen ; Mr. T. Gledhill ; Mr. F. D. Buck ; Mr. H. E. Hammond; Department of Zoology, Cambridge ; Mr. W. W. MacDonald ; Dr. R. Barrass ; Miss D. J. Jackson ; Department of Entomology, London School of Hygiene and Tropical Medicine ; Captain K. J. Hayward ; and the Freshwater Biological Association

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